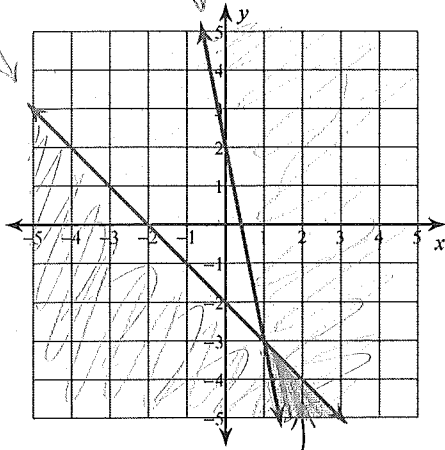


Solving Systems of Inequalities

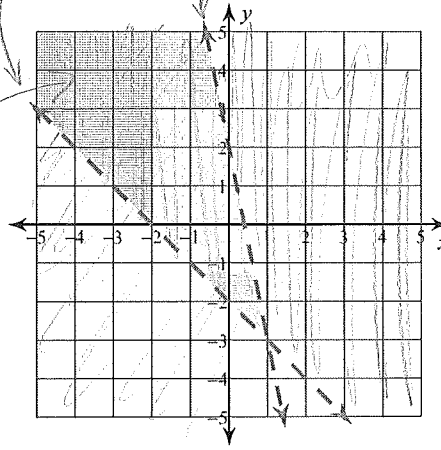
Sketch the solution to each system of inequalities.

1) $y \leq -x - 2$ $0 \leq -2$ No
 $y \geq -5x + 2$ $0 \geq 0 + 2$ No



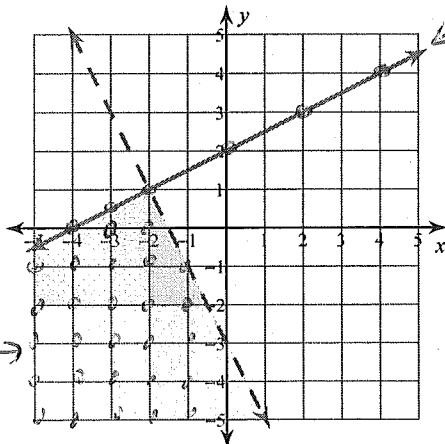
solution

2) $y > -x - 2$ $0 > 0 - 2$ ✓
 $y < -5x + 2$ $0 < 0 + 2$ ✓

assume $x \in \mathbb{R}$
 $y \in \mathbb{R}$ 

solution

3) $y \leq \frac{1}{2}x + 2$ $x, y \in \mathbb{I}$
 $y < -2x - 3$

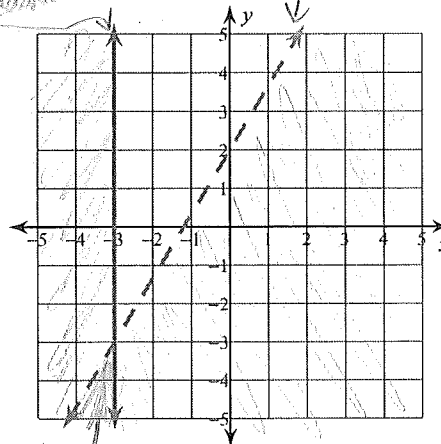


stippled line

stippled →

- no shading, only
 stipples
 - stippled line for $y \leq \frac{1}{2}x + 2$
 (not solid)

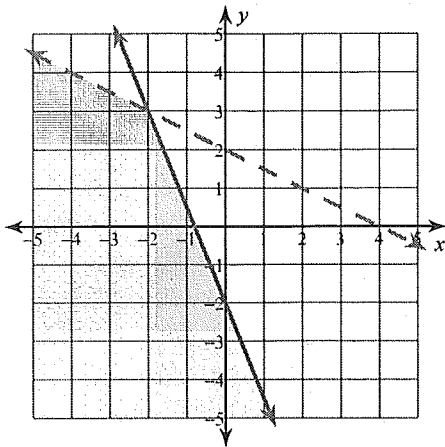
4) $x \leq -3$
 $y < \frac{5}{3}x + 2$

test pt (0,0)
 $0 < \frac{5}{3}(0) + 2$ ✓

solution

$$5) y \leq -\frac{5}{2}x - 2$$

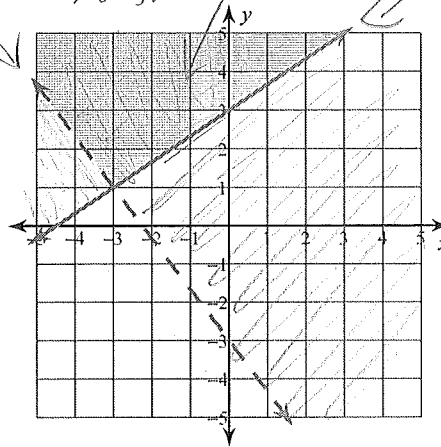
$$y < -\frac{1}{2}x + 2$$



$$6) y \geq \frac{2}{3}x + 3$$

$$y > -\frac{4}{3}x - 3$$

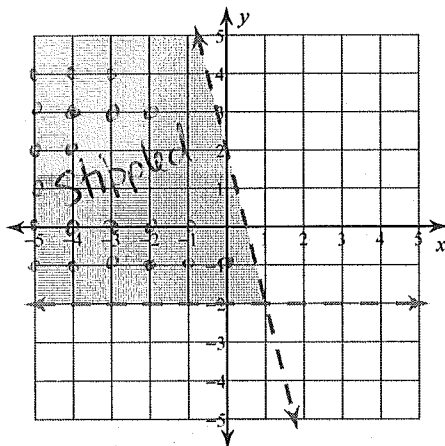
$$0 > 0 - 3 \checkmark$$



$$7) 4x + y < 2$$

$$y > -2$$

$x, y \in \mathbb{I}$



$$8) 3x + 2y \geq -2$$

$$x + 2y \leq 2$$

$$2y \geq -3x - 2$$

$$y \geq -\frac{3}{2}x - 1 \rightarrow 0 \geq 0 - 1 \checkmark$$

$$2y \leq -x + 2$$

$$y \leq -\frac{1}{2}x + 1 \rightarrow 0 \leq 0 + 1 \checkmark$$

